

## CLAIMS

- 1 1. A maskless lithography system comprising an array of focusing elements, each of which  
2 focuses an energy beam from an array of sources into an array of focal spots in order to create a  
3 permanent pattern on an adjacent substrate.
- 1 2. The maskless lithography system as claimed in claim 1, wherein said array of sources  
2 includes an array of light emitting diodes.
- 1 3. The maskless lithography system as claimed in claim 1, wherein said array of sources  
2 includes an array of semiconductor lasers.
- 1 4. The maskless lithography system as claimed in claim 1, wherein said array of sources  
2 includes an array of vertical cavity surface emitting lasers.
- 1 5. The maskless lithography system as claimed in claim 1, wherein said array of focusing  
2 elements includes an array of diffractive elements.
- 1 6. The maskless lithography system as claimed in claim 1, wherein said array of focusing  
2 elements includes an array of Fresnel lenses.
- 1 7. The maskless lithography system as claimed in claim 1, wherein said system further includes  
2 an array of microlenses interposed between said array of sources and said array of focusing  
3 elements.
- 1 8. A maskless lithography system comprising an array of focusing elements, an array of  
2 microlenses, and an array of energy sources, wherein each energy source is positioned to selectively

3 direct energy through a microlens toward a focusing element, and each focusing element is  
4 positioned to direct a focused beam toward a substrate to create a permanent pattern thereon.

1 9. The maskless lithography system as claimed in claim 8, wherein said array of sources  
2 includes an array of light emitting diodes.

1 10. The maskless lithography system as claimed in claim 8, wherein said array of sources  
2 includes an array of semiconductor lasers.

1 11. The maskless lithography system as claimed in claim 8, wherein said array of sources  
2 includes an array of vertical cavity surface emitting lasers.

1 12. The maskless lithography system as claimed in claim 8, wherein said array of focusing  
2 elements includes an array of diffractive elements.

1 13. A maskless lithography system comprising an array of Fresnel lenses, each of which focuses  
2 an energy beam from an array of sources into an array of focal spots in order to create a permanent  
3 pattern on an adjacent substrate.

1 14. The maskless lithography system as claimed in claim 13, wherein said Fresnel lenses are  
2 blazed.

1 15. The maskless lithography system as claimed in claim 13, wherein said Fresnel lenses are  
2 apodized.

1 16. A maskless lithography system comprising an array of photon sieves, each of which focuses

- 2 an energy beam from an array of sources into an array of focal spots in order to create a permanent
- 3 pattern on an adjacent substrate.